AMENDMENTS TO THE SPECIFICATION

On Page 2:

Please replace paragraph [0007] with the following amended paragraph:

[0007] In theory, electronic locators should be suited to the detection of surgical sponges. As a practical matter, it is difficult to make a small tag element with sufficient signal strength for reliable detection at an economic cost. Increasing the size of a tag element may result in a detrimental effect on the utilization of the object it is intended to locate. For example, surgical sponges, a common item for which detection is desired, are useful because they can be deformed for use. However, deformation often distorts large tag elements and small tag elements may not provide sufficient signal strength for detection. A non-deformable large tag would effectively eliminate the usefulness of a sponge which is deformed for use. The inventors prior patent discusses this more extensively in connection with prior known schemes.

Please replace paragraph [0010] with the following amended paragraph:

[0010] The present invention features a method and apparatus for detection of objects such as surgical sponges, which have remained in a patient after surgery. An apparatus of the invention comprises detection tags which are sufficiently small that they do not impede use of an object such as a surgical sponge, or are larger but flexible, are reliable in discriminating detection, irrespective of the tags orientation, and are economical for widespread use in

objects such as garments. The present invention also provides an apparatus and method/system for detecting tags that are sufficiently small for placement in a surgical apparatus.

On Page 4, please replace paragraph [0012] with the following amended paragraph:

[0012] I. An apparatus for the detection of an object contained in a work area includes a tag element affixed to a larger-sized object and containing an electronic signal emitter within the protective means. The apparatus, which works well even with low Q tag elements, further includes an operable interrogation and detection member (or scanning/wand detection device), enabled to locate the tag element which is within a predetermined distance therefrom. The interrogation/detection member includes (i) first means for the emission of pulsed wideband signals in each coordinate direction, each wideband signal including a signal which prompts the tag element to provide a return signal, and (ii) second means for the reception and analysis of the return signal. The apparatus operates such that multiple pulsed signals emitted from the first means cause the return signals from the tag element to increase in the intensity at a detectable frequency sufficiently over ambient noise levels to facilitate detection of the tag element and object attached thereto. The interrogation and detection member contains an antenna portion shared for both transmit and receive functions and a handheld portion to which the antenna is detachably connected, the handheld portion contains the electronic transmitting/receiving components and the antenna portion includes a single or a plural ring-shaped antenna, the latter emitting a pulsed wideband signal as an

electromagnetic signal in each coordinate direction of the multi-directional coordinate system employed.

On Page 5, please replace paragraph [0013] with the following amended paragraph:

[0013] II. A method for the detection of one or more objects in a work area such as in a surgical site including (i) attachably providing each foreign object with a much smaller low Q tag element which does not interfere with utilization of the foreign object, the tag element, which may be a low Q tag element, including means for responding to a wideband signal from a scanning detection device and returning a response signal centered about a specific but not a predetermined frequency. After completion of a surgical procedure, the method calls for scanning the surgical site with a scanning detection device containing a transmitter and receiver, the transmitter emitting either one of a pulse-width modulated wideband interrogation signal or a voltage-modulated wideband interrogation signal, the wideband interrogation signal containing a frequency at which the tag element responds with a ~~signal~~ single response signal for each emitted pulse reaching the tag element, each pulse of the wideband interrogation signal being of such duration as to cause the return signals from the tag element to become cumulatively increased in intensity, resulting in a narrow band return signal having sufficient intensity to be distinguishable from background noise, to facilitate detection of the tag element and object attached thereto.

On Page 7, please replace paragraph [0027] with the following amended paragraph:

[0027] In one embodiment in accord with the present invention, a scanner comprises an electronic signal emitting detection device in the configuration of a movable wand with an interrogation ring (i.e., emitting antenna), and one or more tag elements (for each object to be detected) with each tag being of a size which is sufficiently small as not to impede the function of deformable objects such as surgical sponges to which the tags are affixed. In one embodiment, the tag is no greater than about 12 mm in its largest dimension. The tag element is electrically insulatively encapsulated in a bio-inert (if used in a surgical environment) hard plastic or glass in the form of a bead. Alternately, the tag is contained within a electrically insulative bio-inert flexible thread element (preferably elastic) which is attached to the object to be detected. In this embodiment the flexible, i.e., deformable, thread may be, for example, ~~in~~ about 3" in length. If the object is a surgical sponge, the bead may be directly heat sealed to the threads of the sponge, adhered with a medically acceptable adhesive, or may be provided with an attaching thread for attachment thereto. Tags already in a thread configuration are directly woven into the sponge material where conditions of size are less stringent.

On Page 13, please replace paragraph [0045] with the following amended paragraph:

[0045] Use of an analog to digital converter is useful when an optimal DSP (Digital Signal Processing) technique is to be applied. The time when a signal is sampled is controlled from a TX inhibit clock and control logic in order to insure that a signal captured is at the appropriate time from the transmitter shut off time. Signal processing such as averaging is applied either ~~in~~ through clocking with

the sample and hold or summing circuit or by a microprocessor (μP) or a DSP. In effect, the averaging technique is similar to a synchronous detector creating a super narrow digital like band pass function (increasing signal to noise of tag return signal).

On Page 22:

Please replace paragraph [0071] with the following amended paragraph:

[0071] To further increase the signal to noise ratio, the pulse generator 30 is implemented in such a fashion as to modulate (i.e., vary) the transmitted pulses. In one embodiment, for example, multiple drive voltage levels are used. The voltage levels of the pulses are varied over time. For this embodiment the transmit driver 31 in FIG. 6A is controlled by the pulse generator (likely implemented as software/firmware routine in μP or DSP), and can switch or modulate a variety of drive voltages. Not shown are the voltage sources, and modulation elements, as these should be well established for one familiar in circuit design art.

Please replace paragraph [0072] with the following amended paragraph:

[0072] In another embodiment, pulse width modulation (PWM) and repetition management are first employed to shape the drive waveform. Effectively, in such implementation of an interrogation and detection device, the pulse generator 30 in FIG. 6A, which, for example, may be implemented using firmware in μP or DSP, alters pulse width and number of digital signals applied to

the transmit driver by turning them on or off creating pulse management. Modulation (i.e., variation) either via multiple drive voltages or pulse width variation can also help to discriminate tag signals from noise sources, as a response to modulation by the tags will produce different spectral behavior than other noise sources. This is especially valuable in an implementation with a DSP where signal processing using, for example, FFT (Fast Fourier Transforms) might be used to validate a tags signature in the frequency domain. Signal processing techniques such as using FFT are well established with regard to radar systems and should be available to one familiar with DSP based digital design technology.